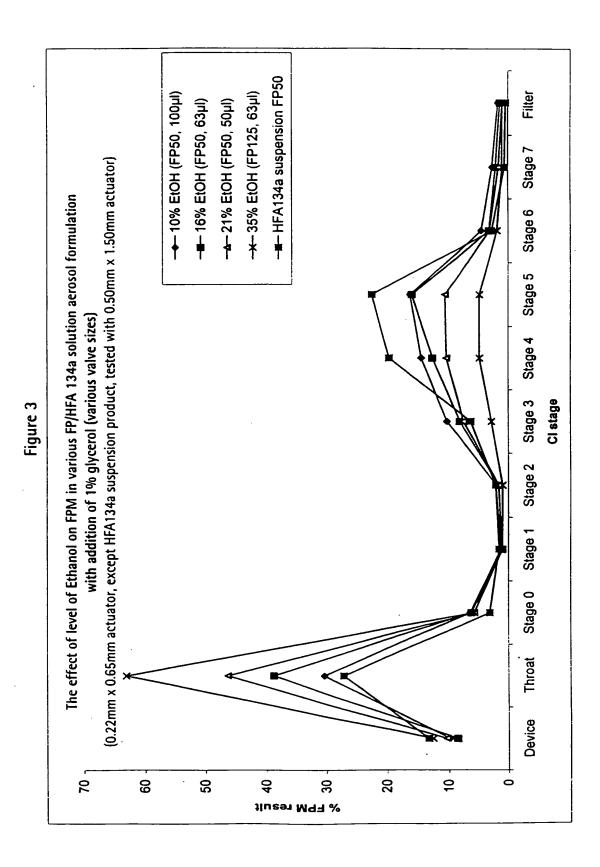


-≖- FP50 HFA134a suspension product/0.50mm Filter Stage 7 (0.22mm x 0.65mm actuator, except HFA134a suspension product, tested with 0.50mm x 1.50mm actuator) The effect of level of Ethanol on FPM in various FP/HFA134a solution aerosol formulation -*-35% EtOH (FP125, 63µl) → 10% EtOH (FP50, 100µl) --- 16% EtOH (FP50, 63µl) -±-21% EtOH (FP50, 50µl) Stage 6 Stage 5 with no addition of glycerol (various valve sizes), Stage 4 Stage 3 Cl stage Stage 2 Stage 1 Stage 0 Throat Device 2 8 20 ဓ္ဌ 20 9 0 \$ & FPM results

Figure 2



--- EtOH+glycerol/0.22mm →- EtOH/0.22mm Filter Stage 5 Stage 6 Stage 7 The effect of glycerol on FPM in FP/HFA134a 125µg solution aerosols containing 35% ethanol or 35% ethanol and 1% glycerol, 63µl valve (all tested with 0.22mm x 0.65mm actuator) - mean data Stage 1 Stage 2 Stage 3 Stage 4 CI stage Stage 0 Throat Device 70 ک 09 50 20 ဓ္ဌ 9 6 0 FP, µg/act

Figure 4

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0.114

Figure 5

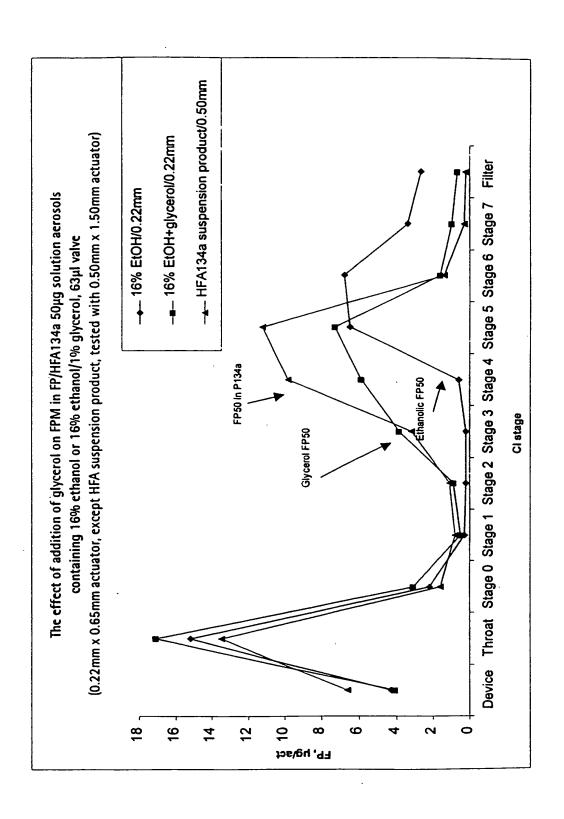
-4- HFA134a suspension product/0.50mm -+-EtOH+glycerol/0.33mm -- EtOH+glycerol/0.22mm FP/HFA134a 50µg solution aerosols containing 16% ethanol and 1% glycerol, 63µl valve Stage 6 Stage 7 The effect of actuator dimensions on FPM and throat deposition in Stage 0 Stage 1 Stage 2 Stage 3 Stage 4 Stage 5 (0.33mm vs. 0.22mm actuator) Throat Device 9 25 20 15 5 വ FP, µg/act

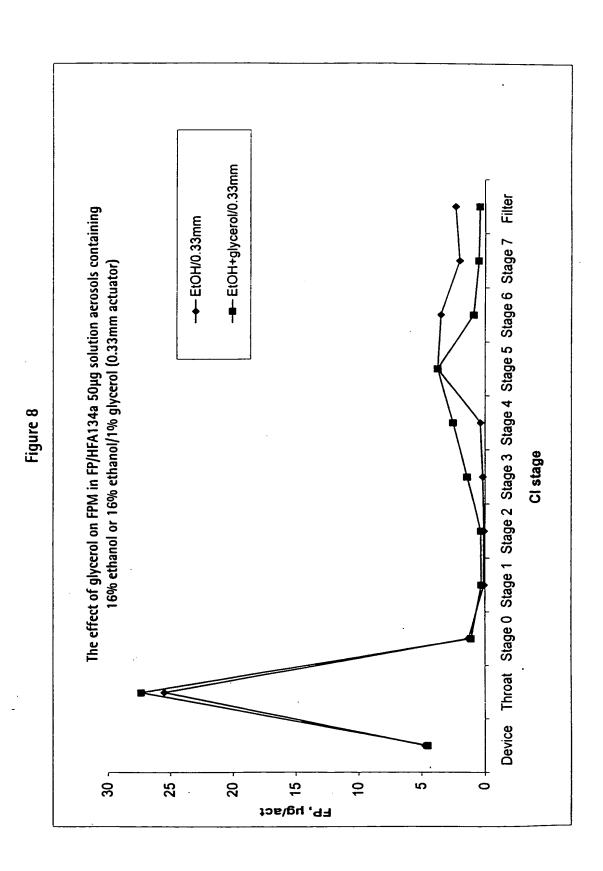
Figure 6

Figure 7

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-4- HFA134a suspension product/0.50mm Filter --- EtOH+glycerol/0.33mm → EtOH+glycerol/0.22mm Throat Stage 0 Stage 1 Stage 2 Stage 3 Stage 4 Stage 5 Stage 6 Stage 7 -+- EtOH/0.33mm --- EtOH/0.22mm -+- EtOH/0.50mm FP/HFA134a 50μg solutions aerosols containing 16% ethanol or 16% Effects of addition of glycerol and actuator dimensions on FPM in Cl stage Device 32 5 8 25 20 15 0 ა FP, µg/act

Figure 9

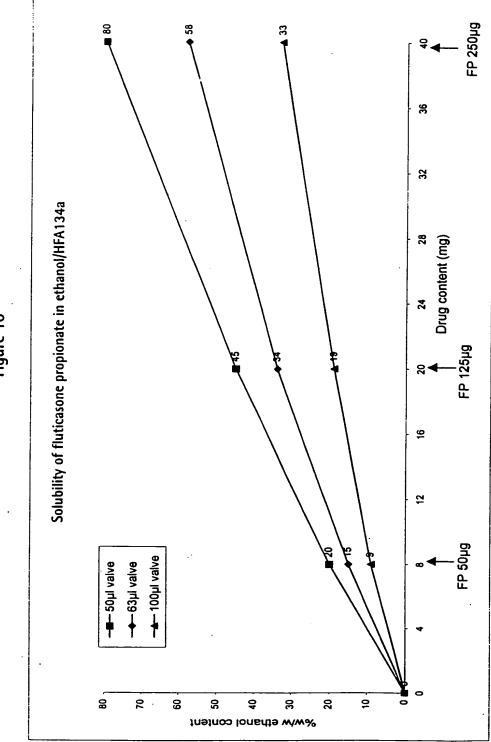
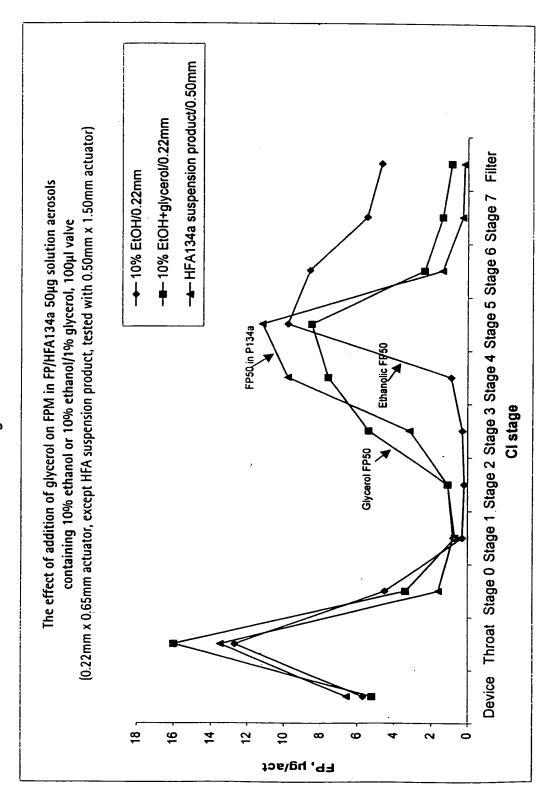
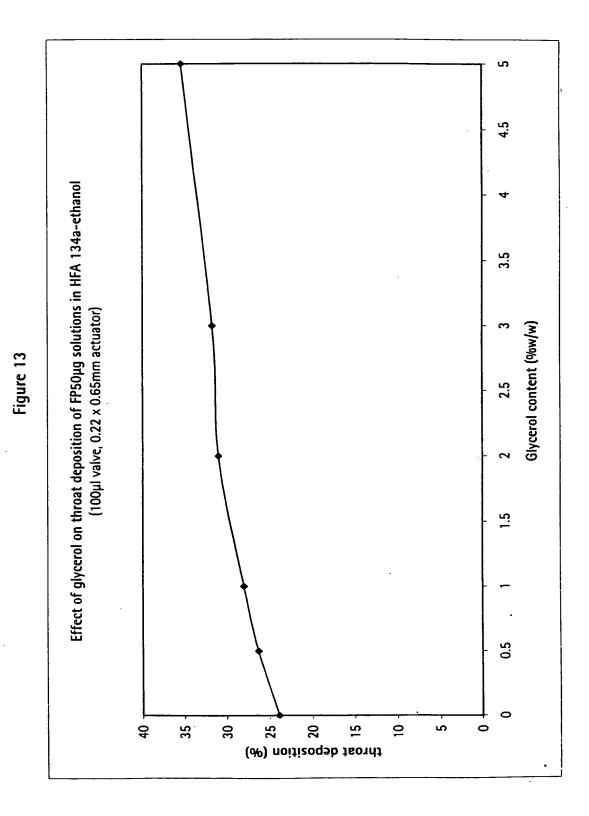


Figure 10

Figure 11



4.5 Effect of glycerol on MMAD of FP50µg solutions in HFA 134a-ethanol (100µl valve, 0.22mm x 0.65mm actuator) 3.5 Glycerol content (%w/w) Figure 12 2.5 1.5 0.5 0 (mц) **QAMM** гі 2.5 0.5



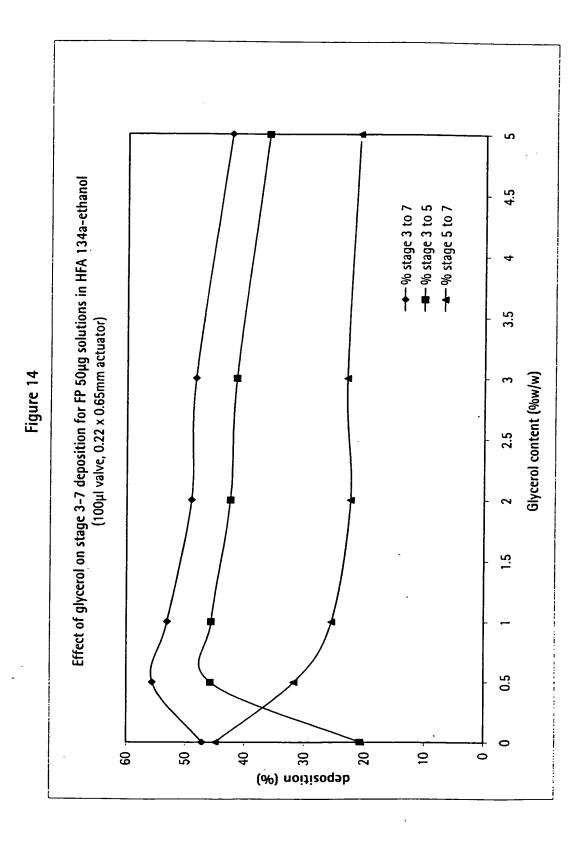


Figure 15

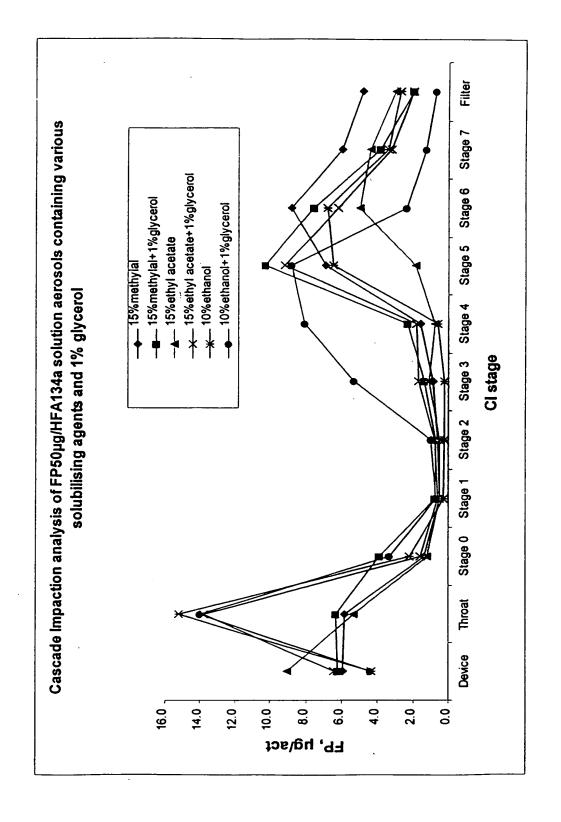


Figure 16

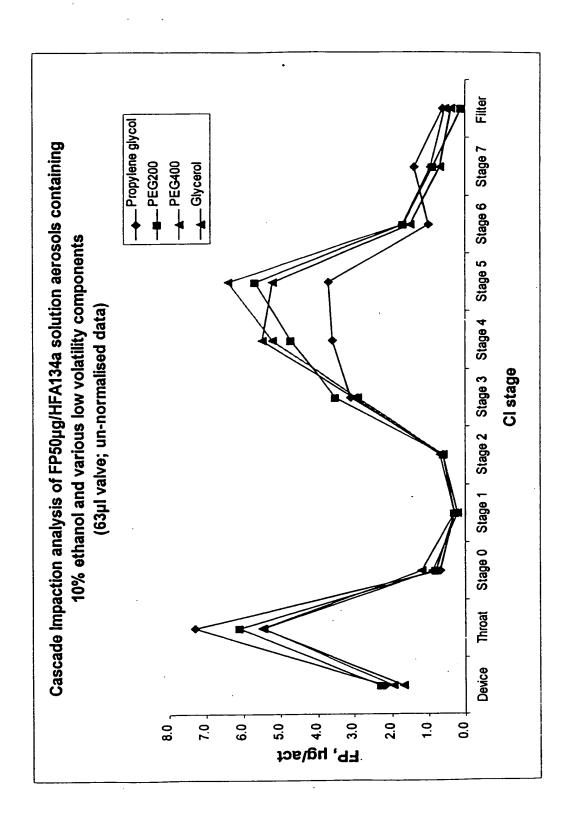
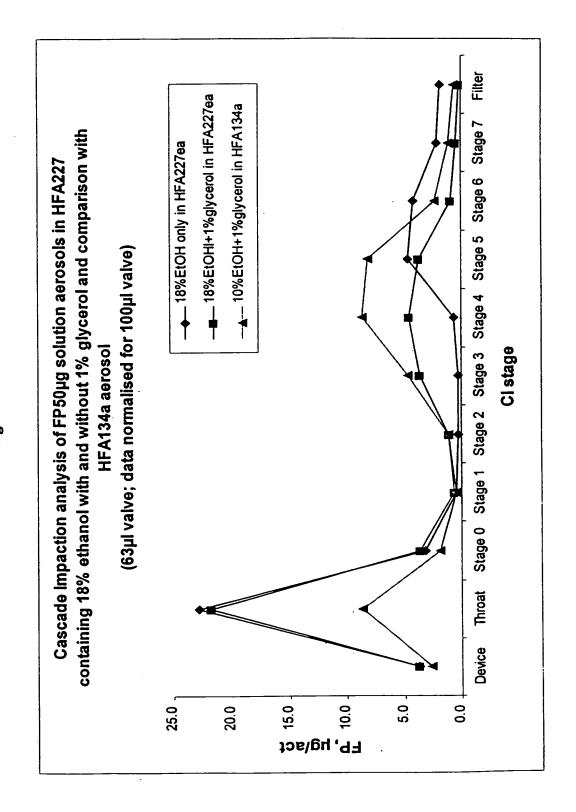


Figure 17



Filter -14%EtOH only in HFA227ea Stage 7 7%EtOH only inHFA134a Cascade Impaction analysis of FP25µg solution aerosols in HFA227 or HFA134a Stage 6 Stage 5 (63µl valve; data normalised for 100µl valve) Stage 2 Stage 3 Stage 4 containing ethanol Cl stage Stage 1 Stage 0 Device Throat 7.0 FP, µg/act 2.0 0. 5.0 0.0 0.9

Figure 18

Figure 19

